MARINE REVIEW.

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Lake Freight Outlook.

The general lake freight outlook is not to the vessel owner what it was thirty days ago. Although the situation is by no means indicative of an unprofitable season, the absence of a demand for tonnage in the ore trade has caused vessel owners who tied up their boats a few weeks ago at $1.25 a ton for the season from Ashland and Two Harbors to feel that they have the best the market will afford for some time to come. A fair increase in receipts of corn at Chicago and wheat at Duluth during the past few days has strengthened the grain freight market somewhat, and Duluth is offering 4 cents for vessels to arrive at the opening, while 3½ cents on corn and 3¾ cents on wheat has been paid at Chicago for storage and delivery at Buffalo on the opening. The Duluth offer is not being very freely taken, and some owners having vessels at Chicago are refusing the rates quoted, on the feeling that the tonnage wintering there is hardly sufficient to go around and that the market for this tonnage may improve. Although these opening rates on grain are decidedly profitable, the outlook in ore is not encouraging. It is announced positively from the offices of Pickands, Mather & Co. and M. A. Hanna & Co. of Cleveland that some of their pig iron furnaces are being banked, on account of over-production, and other furnace owners in the Mahoning valley are preparing to shut down within the next two or three weeks. Ore dealers now say they can see no hope for relief from the present demoralized condition of the pig iron market before July or August. They are offering no ore to vessels from any point and this is, of course, the cause of a very dull feeling in Cleveland, although coal will undoubtedly be moved in large quantities and the grain shows no signs as yet of giving out. It must be admitted that if navigation was to open at this time the contract rate of $1.25 from Ashland would hardly hold good on wild cargoes, and on this account a great deal depends in the coming season upon the time of opening navigation. Two trips of the big vessels in April would go very far toward depressing rates. The report of $1.15 being paid last week on a contract from Marquette can not be definitely traced.

Ohio and Pennsylvania coal operators as well as the representatives of railways carrying coal between the mines and lake ports will meet in Pittsburgh on Monday and Tuesday next, when it is expected that rail rates to lake ports will be established. With a settlement of rail rates and other matters to come up at the Pittsburgh meeting, it is thought that some negotiations on lake freights may be opened between vessel owners and shippers.

Rates on lumber from the Saginaw valley are expected to open on a basis of $1 75 to $2 from Bay City to Buffalo. The latter figure may be looked upon as an outside one, as in the case of lumber also the sales market is dull and less satisfactory than it was a month ago. Ashland lumber shippers who a short time ago offered $2.50 for the season now refuse to pay that figure.

Triple Expansion Engines of the Comanche.

The supplement presented with this issue of the REVIEW is a good illustration of as compact, neatly designed and mechanically handsome triple engines as have ever been built in the United States, and if one may judge from illustrations in foreign papers, they will certainly compare with anything built abroad. They are from the shops of the Globe Iron Works Company, Cleveland, and were recently placed in the hull of the steel steam yacht Comanche, building by the same company for Mr. H. M. Hanna.

The engines are of the inverted vertical overhead cylinder type, with a diameter of 14 inches for the high, 23 inches for the intermediate and 36 inches for the low-pressure by 24 inches stroke. Piston valves are used on the high and intermediate engines, while that of the low pressure engine is fitted with a double ported slide valve. Valve chests are on the working side of the engine and are driven direct from the connection rod by what is known as the Joy gear. With this gear the lead remains constant at all grades of cut-off. The crank-shaft is built up in one piece from the coupling abaft the thrust-block to the forward side of the forward journal, and the collars for the thrust are formed on the after end. The crank-shaft is supported by six journals in the bed plate and one on the thrust-block. The thrust-block is of the horse-shoe type and is faced with white metal, and the main and crank pin journals are filled with the same metal. The air, two feed, one bilge and one cold water pump are attached to the after column of the after engine and are driven by drag links from the cross-head. The air pump is lined with brass and the foot, bucket and discharge valves as well are of brass. The plungers and piston rods of all of the pumps are of the same metal. The condenser is separate from the main engine and circular in form and filled with eight hundred tinned brass tubes. The exhaust steam comes in contact with the outside surface of the tubes, and the condensing water is on the inside, traversing the length of the condenser twice before it is discharged overboard. The piston for the main engine is of cast iron with a single packing ring set out by flat bent springs. Piston rods and valve stems are of steel, and the cross-heads, connecting rods and the entire shafting are of best forged scrap iron. Liberal bearing surfaces are provided on all of the journals. The condensing water is driven through the condensers by a 7-inch centrifugal pump, driven direct by a 5 by 6-inch vertical engine attached to the pump.

The main engines are supplied with steam from a Scotch boiler 12 feet in diameter by 9 feet long, having three furnaces 36 inches in diameter. The furnaces are plain and stiffened with the Adamson joints. The boiler is of steel 1 1-16 inches thick, and is built to stand a working pressure of 160 pounds per square inch. There is a small donkey boiler provided for supplying steam to run the electric light engine, pump, etc., when steam is not needed in the large boiler. A vertical duplex pump is provided to be used as an auxiliary feed and for washing deck, fire, etc. The electric light plant is in duplicate and consists of two small 4x5 inch vertical, direct-acting engines, attached to the dynamos and is fitted complete with switch-boards. The main engine turns a sectional cast iron screw, 9 feet in diameter by 10 feet 6 inches pitch.

The Dry Dock Engine Works of Detroit has closed a contract with Morley Bros. & Co. of Marine City, for a fore and aft compound engine and a boiler, to be placed in the steamer similiar to the St. Lawrence, now building at the Morley yard, Marine City. The cylinders will be 27 and 50 inches in diameter and 40 inches stroke, with air-pump, condenser, feed-pump, bilge-pump, etc. The boiler will be 11 feet 6 inches diameter and 16 feet long, working pressure 110 pounds.

Repairs Can Not be Made in Canada.

In its circular of decision for December and January the treasury department gives out the opinion of the United States general appraises at New York in a case of special importance on the lakes. "We find" says the opinion "that the steam propeller Jessie Bain, was on the 19th day of April, 1891, the property of the Thousand Island Steamboat Company, a corporation existing and organized under the laws of the state of New York, and was a vessel enrolled and licensed under the laws of the United States to engage in the foreign and coasting trade on the northern frontiers of the United States; that in said month of April while making a trip from Cape Vincent to Kingston, she lost her propeller and was towed into Kingston, Canada, for repairs; that, as shown by vouchers in this case, from May 11, 1891, unto the 4th day of August, 1891, repairs, the cost of which amounted to the sum of $132.44, were placed upon said steamer in Canada, including the cost of a new propeller; that on the 4th day of August, 1891, entry thereof was made at Cape Vincent, and duty at 50 per cent. ad valorem was levied upon said repairs under the provisions of section 3114 of the revised statutes of the United States and paid by the owner of said steamer.

"We further find that it was impracticable for said vessel to be repaired elsewhere than at Kingston, Canada; that the regular course or trips of said steamer were made between Cape Vincent, United States and Kingston, Canada, and that said repairs were made to enable said steamer to return to the United States in pursuance of her regular line business. The steamboat company protest that said duties were wrongfully levied, and said repairs being claimed to have been necessarily made in a Canadian port for the purpose of enabling said steamer to return to the United States. Upon the facts found, the duty appears to have been lawfully levied, and if the steamboat company has any right to a remission thereof, it is a matter wholly for the consideration of the honorable secretary of the treasury under section 3115 of the revised statutes. The protest is overruled, and the action of the collector affirmed."

Forgings For Steel Vessels on the Lakes.

Rapid development of the steel ship building industry on the lakes is attracting the attention of some of the largest steel and iron concerns in the world. In a recent article contained in Industry of San Francisco, Mr Irving M. Scott, general manager of the Union Iron Works of that city speaks in the highest terms of some of the forgings for war vessels made by the Bethlehem Iron Company of South Bethlehem, Pa. In a letter to the REVIEW regarding these forgings, the Bethlehem company says:

"Since starting up our forging plant our product has principally been gun forging and shafting for the government but we are looking to some work for the lakes for high quality forgings. We fully appreciate the rapid development of ship building in the lake region. We have made some shipments there, principally of heavy forging for hoisting and crushing engines of the Calumet and Hecla Mining Company. As to the forgings for San Francisco we may say in general that we not only furnished the Union Iron Works, with the shafting, connecting, rods and other heavy pieces for the San Francisco, Monterey, Cruiser No. 6 and Oregon, but we have furnished or have under contract the shafting for all battle ships and cruisers for the new navy since the building the Charleston, excepting the Texas and the two small cruisers Nos. 9 and 10.

A Wonderful Insurance Company.

With the close of the present year the Insurance Company of North America completes the hundredth year of its existence. This company has always had a fair share of business on the lakes. The company was founded in 1792, and transacted a large and profitable marine business, fire insurance being then but little practised. Regular dividends were paid until 1800, when the heavy losses by French captures caused an intermission of seven years. In 1807 they were resumed, and continued until the war of 1812-13, when again they were three years without dividend. In 1816 they were again resumed, and from that time until the present (76 years) there has been only four years in which no dividends have been paid. The average of the ninety-nine complete years has been 12 40-100 per cent. When first organized, the capital was $600,000, and remained at that figure until 1842, when it was reduced to $300,000, in consequence of losses from investments. In 1850 it was made $500,000 in 1874, $1,000,000, in 1876, $2,000,000 and in 1881, $3,000,000.

Partial Re-Surveys and Information Bulletins.

Early in May the initial work of what will prove to be of great value to lake shipping interests will be commenced by the re-survey of Colchester reef and Little's point vicinities, Lake Erie. Ths survey will be in charge of Charles Riche, first lieutenant U. S. engineers. It will be remembered that several of the large ore carriers struck near those points last season and a re-examination of this part of the Lake Erie course was deemed fully as important as any other point on the lakes. The appropriation with which this work will be prosecuted was made by Congress, Aug. 30, 1890, and it amounts to $10,000. As long as this appropriation holds out shoal spots will be located and indicated on charts. For work of this kind and work on a larger scale, combined with the issuance of a monthly bulletin, giving information of locations of newly discovered dangerous spots, Gen. Poe has recommended, and the chief of engineers has brought to the notice of the secretary of war, an appropriation of $50,000 for the coming year. The probable depth of water for the coming months could be estimated in this circular. This would be of value to vessel owners, the engineer in charge of the work having reliable data to base estimates on. The revision of the Sault river chart recently forwarded to Washington from Gen. Poe's office is an apt illustration of the benefits from a re-survey force which it is expected to establish with the $50,000 asked. Private lights, buoys, sailing directions, etc., are indicated on the new chart, which will be ready for masters within a few months. All this has been accomplished under the difficulties of a limited appropriation and the consequent result of being unable to place any considerable force in the field. The following is from Gen. Poe's report on this subject:

"Attention is earnestly invited to the fact that the draft and size of the vessels carrying the commerce of the lakes has considerably increased in the last few years, and will again be increased when the new lock in St. Mary's river, now under construction, is completed. Localities deemed perfectly safe for navigation when the maximum draft of vessels was 12 feet are regarded with suspicion when the draft is one-half or more greater. Consequently certain special areas should be re-examined for the benefit of the enormous commerce now upon the lakes. The levels of the lakes are subject to considerable fluctuations in the course of a season as well as from one season to another. Lake Ontario, between the highest and lowest recorded, has fluctuated nearly or quite 5 feet, Lake Erie quite 4 feet, Lakes Huron and Michigan nearly 5 feet and Lake Superior about 4½ feet. Charts when drawn and engraved are made to show depths below some plane assumed for the chart, and can not change for the temporary fluctuation of the water surface. Referring for illustration to Lakes Huron and Michigan, the lowest water for the season has been decreasing for the successive years, and almost uniformly, from 1885 to 1891, inclusive, a period of seven seasons, and in 1891 has reached the lowest point since 1873. In that period of seven seasons there has been a considerable advance in the size of lake craft, which, combined with the much lower stage and the consequent lesser depth, has made navigation insecure where formerly no difficulty was met with. In due course the lakes will again rise and difficulties will diminish. Still, certain special re-examinations should be made, and, in view of the importance of the subject and the enormous tonnage on the lakes, an appropriation of $50,000 for "surveys, additions to, and correcting engraved plates" is earnestly recommended. These re-examinations can be made in the most economical and expeditious manner, because of the organized districts in connection with river and harbor work now at the chief cities on the lakes. The records of the former survey, triangulation data, etc., are now in this office, and every use will be made of them to prevent the duplication of work. Steps have been taken with the means on hand to add to the number of coast charts now published for Lakes Huron and Superior, and surveys have been ordered at localities on Lakes Erie and Ontario."

The Manufacturers' Record of Baltimore, Md., was sold on the 29th ult. by the Messrs. Edmonds to Walter H. Page, editor of the Forum of New York, E. H. Sanborn of Philadelphia, Pa, and Thomas P. Grasty, who has been for nearly three years the chief southern correspondent of the Manufacturers' Record. The Record was established nearly ten years ago.

Iron Mining.

VALUE OF LEADING STOCKS.

Quoted by Chas. H. Potter & Co., No. 104 Superior St. Cleveland, O.

Stocks.	Par Value.	Bid.	Asked.
Cleveland-Cliffs Iron Company	$100 00	$.....	$ 80 00
Champion Iron Company	25 00	.....	70 00
Chandler Iron Company	25 00	47 50	49 50
Jackson Iron Company	25 00	.....	105 00
Lake Superior Iron Company	25 00	.....	*55 00
Minnesota Iron Company	100 00	80 00	82 00
Pittsburg Lake Angeline Iron Co	25 00	150 00	.....
Republic Iron Company	25 00	22 00	23 50
Ashland	25 00	.....	52 50
Section Thirty-three	25 00	.....	8 00
Brotherton	25 00	2 00	2 75
Iron Belt	25 00	2 40	2 75

* Ex. rights.

Iron stocks are dull and in a few cases prices are somewhat lower. The failure of the pig iron market to respond to improvement in nearly all other branches of the trade is still a main cause of inactivity in stocks. The Chandler company paid on the 1st inst. the second installment of $1 a share on the dividend of $6 a share promised for the present year but outside of this there is nothing new in the dividend line. Some of the Gogebic stocks, Aurora, Ashland and Iron Belt, have sold at reduced prices during the past few days, probably due to the fear of large supplies of ore from the new Mesaba range. Notwithstanding the delay in sales all of the producing mines are apparantly being worked to full capacity.

Although value of stocks in the large number of companies that have taken up mineral lands on the new Mesaba range of Minnesota where test pits are being sunk fluctuate almost hourly in Duluth, the headquarters of the boom, it is remarkable that outside of some investigations made by the Minnesota Iron Company the managers and leading operators in the old Lake Superior districts have shown very little interest in the new range, and of the hundreds of names connected with new companies that are being organized daily none of the owners of Marquette, Menominee and Gogebic range mines are to be found. Outside of Duluth parties who are known to be leading promoters of the range, the names of investors come mainly from the south and from Minneapolis and St. Paul. The methods of the boomers are fully equal to those practiced on the opening of the Gogebic range a few years ago, and that the craze has now taken on a full head of steam there is little doubt. A large portion of the newspaper articles are of the paid advertising kind and the services of correspondents are eagerly sought in this direction. The range may have good ore in paying deposits but the the present boom will certainly delay its development. Ex-Governor Campbell of Ohio, visited the range a few days ago and is prominently mentioned in connection with a corporation called the Ohio company, which has all the elements of a stock floating concern. The current issue of Iron Ore of Ishpeming contains a number of assays from the ore of several companies that have sunk pits and are now selling. The ore is below the Bessemer limit in most cases and the claim that it is of an unclean kind with a flat formation is repeated. The charge may be made that the owners of mines on the older ranges fear the development of the Mesaba, but it goes without saying that a claim of millions of tons of ore for any mine or large tract of land based on the sinking of test pits is of little account.

Ferdinand Schlesinger, whose management of the group of mines originally controlled by what is known as the Schlesinger syndicate has been quite successful since the settlement of the Chapin difficulties, proposes to add to the present heavy production of these mines by reopening another property, the Claire. A report from Crystal Falls says that a mining force will be put to work immediately, and, although no ore was shipped last season, the mine has two shafts and can make a very large output.

The January number of the regular monthly pamphlet from the treasury department contains a copy of a circular which local inspectors have been giving out to all applicants for licenses as masters, mates, pilots or engineers. The circular calls special attention to leading features of the steamboat laws.

Send 20 cents in stamps for Tabulated Statement showing Lake Superior ore production for 1891, and the past 36 years.

Proposed Changes in the Business of Lake Insurance.

Special Correspondence to the MARINE REVIEW.

MILWAUKEE, Wis., March 10—Local insurance men have received notice that an informal meeting of the underwriters insuring lake risks was held in New York on the 1st inst., for an exchange of views concerning the methods that have heretofore prevailed on the lakes in the adjustment and settlement of general and particular average losses. It was the unanimous opinion that the existing system is not calculated to afford the interests of underwriters a proper and sufficient protection, and that the customs that have prevailed and new principles sought to be introduced into general average adjustments are not consistent with the laws of general average as settled by the courts, nor with the rules and customs prevailing in the seaports of the United States; and that the growth and and development of the carrying trade on the lakes, the large values represented, the increased size of vessels now employed, render it imperatively necessary that an effort should be made to bring the settlement of losses within the lines of the law and the rules of maritine commerce, but with a due regard to the conditions under which lake transportation is conducted, and equitable consideration for the shipowners' interest as well. It was thought that several minor changes in the form of hull policy would conduce to the desired reform, and that a plan for the general supervision of all claims by a competent bureau representing jointly all underwiting interests could be arranged that would tend to remove some features now open to serious objection. It was considered that to render the movement objective the co-operation of the lake underwriters would be necessary, and the latter are therefore invited to attend a meeting for this purpose to be held in New York city on March 16. The companies represented at the informal meeting were the Atlantic Mutual Insurance Company of North America, Greenwich, Ætna, British & Foreign, Union Marine, New York Marine Underwriters, Standard of Liverpool, Mannheim, Reliance Marine and the Sea. Most of these companies have general agencies at lake points, and the invitation is more particularly extended to such companies doing business on the lakes as are not represented in New York.

Statistics gathered from the books in the office of the collector of customs show such a volume of east-bound winter business for the east shore transit steamers that it need not be wondered at if, as reported, the Canadian Pacific, Pennsylvania and other trunk lines are quietly preparing to enter the field in the near future by introducing steamers of their own and establishing independent terminals at east shore points. According to figures secured from the source indicated, there were carried out of Milwaukee by the steamers of the Flint & Pere Marquette, Grand Trunk and St. Joseph lines during the months of December, January and February 838,582 barrels of flour and 954,384 bushels of grain, besides mill feed and miscellaneous freight, the grain being divided as follows in bushels: Wheat 114,000, corn 40,000, barley, 527,384, rye 160,000, oats 113,000. But for a scarcity of cars experienced on at least two occasions, the figures, surprising as they are in their present shape, would have been at least 20 per cent. greater. The introduction of additional steamer lines by new routes, as competitors for this winter business, does not threaten the least harm to the routes now operated; it means only an increase in volume to the extent of added facilties for handling freight destined for seaboard points.

Masters and engineers of a number of small coarse freighters wintering here are already engaged in fitting them out for the season, with the expectation of making a start not later than the 1st. of April. About all of these steamers have season engagements, and the only thing that stands in the way of a start as early as the middle of the present month is the presence of ice in the little lakes at east shore points.

Large fields of ice that were dislodged by warm weather at the lower end of the lake during the early part of February have been driven to the west shore by continued northerly and easterly winds, and now so effectually blockade the harbor at Kewaunee that the steamer Osceola and the boats of the Goodrich line have not been able to effect an entrance for two weeks. The blockade constitutes a serious detriment to the movement of flour eastward by the Lackawanna's Frankfort route.

People who have wondered why the American Steel Barge Company quit building whaleback barges at Brooklyn for the Atlantic coast trade will wonder no longer when they learn, from such excellent authority as Capt. Alex. McDougall himself, that the two original barges, 201 and 202, are to be transferred to the lakes soon after the opening of navigation. Capt. McDougall assigns "big freight" on the lakes as the main reason for making the transfer. This is an easy way of admitting that the barges have proved unprofitable in the trade for which they were built.

Capt. Hugh W. Jones died at Racine on Saturday aged 67 years. His first command on Lake Michigan was the schooner Ethan Allen, and later he owned an interest in and commanded the schooner Onward.

The editor of the MARINE REVIEW has examined Patterson's Nautical Dictionary thoroughly, and with pleasure recommends it to any one having any connection with marine affairs.

CHICAGO LAKE INTERESTS.

WESTERN OFFICE, MARINE REVIEW,
No. 210 So. Water Street, CHICAGO, Ill., Mar. 10.

Just now the great question among Chicago men who go down to the lake in ships is that of water transportation to the World's Fair. Over six months ago the World's Fair people called upon ship owners for propositions to carry passengers to the fair grounds at Jackson park, a run of about 7 miles from down town. No definite responses were received until Capt. J. S. Dunham asked for the exclusive privilege of landing at the exposition piers. He soon convinced the committee on transportation that this was the only manner in which the traffic could be satisfactorily handled, without any profit to the exposition company. The committee then announced that propositions would be received up to a certain date. When that time came Capt. Dunham's proposition as to exclusive privileges was accepted, but the committee advertised for bids. These bids were opened in secret March 1, and to this day no one knows, outside the fair's coterie, what they were. It is now given out that the committee is investigating the financial standing of bidders and will report next Monday. Just before the bids were tendered, Gen. Miles gave a dinner to officers of the whaleback company, at which some forty prominent citizens were present. Some of the speeches were suspiciously enthusiastic. One speaker drew a beautiful picture of steamers carrying 6,000 people and running 25 miles an hour on their way between the fair grounds and down town. Some 50,000 people were thus to be carried per hour. The fleet to carry such a crowd would not cost less than $7,000,000, and the boats would be of no earthly use after the fair was over. They would not make expenses during half the World's Fair season. Nevertheless the whaleback people seem in earnest. There is a well-grounded suspicion that the big passenger boat, so much heralded in the press, will never be built at all. The earnestness comes from a scheme to use the ordinary freight whalebacks in the passenger service during fair year. Although the expense of fitting them up for pessengers would be material, yet it would be quite another thing than putting money into steamers for one season's service costing $700,000 a piece.

Ex-State Senator Richard Burke will become deputy collector at the barge office next Monday. Mr. Burke is a very genial gentleman and will be well liked by vessel captains. The present incumbent resigned to take the management of the Lake Marine News Association, recently incorporated by the Chicago Tribune, Inter-Ocean, Times and Herald.

Vesselmen may protest against this bill and that, providing for better statistics of lake traffic, but something is absolutely required. The government is now under heavy expense to secure statistics, but what is the result worth? There ought to be an easy way, involving no hardship on captains or owners, whereby the desirable end of knowing the traffic on the lakes can be gained.

The Graham & Morton people have chartered the propeller City of Marquette. They will commence running her between St. Joseph, Benton Harbor and Chicago March 15.

Charles Councilman, lessee of the Rock Island elevator, has purchased dock property on the Calumet river at South Chicago, and will erect thereon this spring a large elevator. It is said that other railroads are contemplating building elevators this summer at South Chicago.

March 17 bids will be opened by the transportation committee of the World's Fair and the contract let for the steam launch privilege in the lagoons at the fair grounds. The specifications require the construction of fifty launches, 34 feet long, at a cost of $5,000 each. The boats must be new and have a speed of 15 miles an hour. There is 2 miles of navigable water in the grounds and sixteen landings. Capt. Robbins, a launch builder of New York, and others from Philadelphia, Baltimore and Detroit are now in the city.

A Sub-Marine Gun.

Special Correspondence to the MARINE REVIEW.

WASHINGTON, D. C., March 10.—The House committee on naval affairs, has recently had under consideration a bill, looking to the addition to the navy of a novel craft, which, if the assertions of its designers are realized, will revolutionize the present practice of harbor defense. The vessel will be known as the Berdan iron-clad destroyer. It is to be 260 feet in length by 40 feet in breadth and 16 feet draft, giving a displacement of 2,400 tons, with a speed of 20 knots per hour. The vessel in size will be larger than the Yorktown and smaller than the Charleston. The feature of the design is found in an enormous submarine gun carried at the bow below the water line. Submarine guns have been tried before this, notably by Ericcson, and the navy department is experimenting in this direction, but the projectors of the pending bill feel that they have successfully overcome the difficulties encountered in these attempts and have now a practicable means at hand to drive an enormous shell loaded with an explosive charge of gun powder or gun cotton into the hull of any iron-clad afloat and explode it in the very vitals of the ship. According to the design submitted to the committee and explained by Gen. Berdan, a hydraulic buffer projects from the bow of the vessel. This is so adjusted that it will stop the boat at a distance of eight feet from the enemy's ship without injury to the boat. At this short range the buffer automatically discharges the submarine gun directly at the hull of the ship and lodges within it a shell carrying a bursting charge of 450 pounds of powder, sufficient to blow down every bulkhead in the ship and wreck the bottom. The details of the boat have been carefully worked out, and the calculations have been verified by experts. Gen. Flagler, the chief of ordnance of the army, has approved the plans and, as Gen. Berdan stated to the committee, Cramp & Sons stand ready to guarantee the performance of the vessel.

Secretary Tracy of the navy a few days ago submitted in a very long letter to Hon. Eugene Hale, chairman of a sub-committee of the Senate committee on naval affairs, his views on Senate bill No. 67 "to transfer the revenue cutter service from the treasury department to the navy. Notwithstanding that the present secretary of the treasury is of a different opinion from his predecessor on the subject, Secretary Tracy is more strongly than ever of the opinion that the change is desirable. The letter is a complete endorsement of the change and deals with all sides of the subject.

Reciprocity in Wrecking.

Special Correspondence to the MARINE REVIEW.

KINGSTON, Ont., March 10.—Forwarders here are anxious to learn the exact result of the recent visit of the Canadian ministers to Washington. They fear that the rebate of canal tolls will be allowed on grain transhipped and stored at Ogdensburg for Montreal. If that is the case the forwarding companies will likely shift to Prescott, some fifty miles down the river on the Canadian side and about the same distance from Montreal as Ogdensburg. It appears they are determined to compete. Kingston, however, would be a heavy loser. This is the talk in marine circles. It is now almost beyond a doubt that the reciprocity in wrecking bill will be passed during the present session of parliament. It is being introduced by Hon. MacKenzie Bowell, a member of the cabinet, and is about the same as the Kirkpatrick bill introduced last session.

The Richelieu and Ontario Steamboat Company cleared $150,415 last season, an increase of nearly $49,000 over 1890. Encouraged by this result the company has contracted for a new large steel steamer.

The schooners Hyderabad and Bangalorr are being converted into stone carriers, to work at the Sault Ste. Marie locks.

J. B. Fairgrieve & Sons of Hamilton are building a new steel hull to replace the propeller Canada, which is worn out. The engines of the Canada will be put into the new hull. The boat will be 180 feet long and carry 1,300 tons. MacKay Bros. of the same city have purchased the propeller St. Magnus. Her former owner, Capt. Robertson, fell into her hold and was killed. The price is said to be $16,000.

There has been no shipbuilding in Kingston this winter to speak of. The two forwarding companies have done considerable repair work, however, and in a few weeks the Montreal Transportation Company is expected to lay the keel of a large lake barge with a capacity of about 35,000 bushels.

Toledo Items.

Special Correspondence to the MARINE REVIEW.

TOLEDO, O., March 10—When Bills & Koch let the contract to the Craig Ship Building Company last fall, to build for them a new steel steamer for the lumber trade, they calculated to put the Germania's machinery and boiler into the new hull and they contracted, accordingly, with Capt. Wm. J. Harlow of the steamer Ida M. Torrent to tow their barges the H. C. Sprague, Wm. Case and Wyandote. They have since concluded to put other machinery in the new boat, as it is understood that, Robert Hannon and Jeremiah Shampaign of Bay City, engineers of the Germania have purchased her. The price is not made public. Capt. Chas. Peltier will sail the new boat and Mr. Hannon will be her chief engineer, engineer Shampaign taking the Germania. Under the terms of Capt. Harlow's contract it is doubtful if the Germania can secure her old tow again, within sixty days unless her owners buy the Torrent off.

Messrs. De Wolf and McGrath, government inspectors, were here on Monday to inspect Capt. Gillespie's plans for storing and burning crude oil in the sand barge Laura D. They will make a favorable report to Washington.

Only 1½ cents a bushel is offered on grain to Erie.

At the annual meeting of the Detroit Vessel Owners' Association, Tuesday, a protest to the now famous Frye bill was adopted and the following officers were elected for the ensuing year: Eber Ward, president; E. M. Peck, vice-president; W.A. Livingstone, secretary and treasurer; R. N. White, member of board of directors, to take the place made vacent by the election of Capt. E. M. Peck to the vice-presidency.

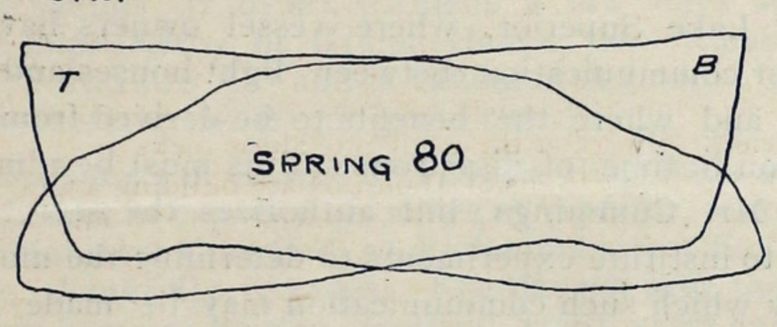
☞SEND YOUR ORDER FOR "PATTERSON'S NAUTICAL DICTIONARY" ($5) TO THE "MARINE REVIEW" AT ONCE.

Value of the Indicator.

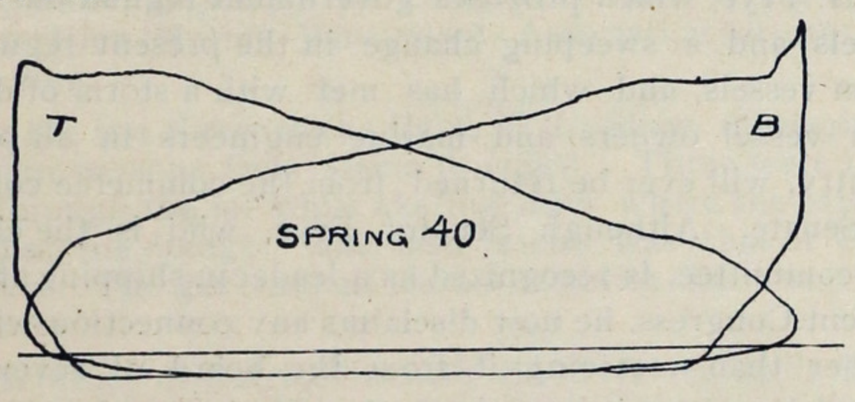
About the middle of last season a large triple expansion engine in one of our Cleveland steamers suddenly lost three revolutions a minute, so that instead of making her usual 80 revolutions per minute, only 77 could be obtained, while her coal bill was considerably increased to get even that number. This was a bad state of affairs surely, but as it is one that occurs through the wear and tear of certain parts of an engine, the usual remedies were resorted to. The eccentrics on the main shaft were examined to see if they had shifted; covers of the high, intermediate and low pressure steam chests were taken off to see if any of the valves had slipped on their stems. But, no! Every thing looked to be all right. The valves had the correct amount of lead on both centers. Up came the cylinder heads so the engineers could look at the piston rings. They were also in good shape and did not need setting out. The air pump and vacuum guage were then examined and found to be in good working order. Still the engine was not doing her work, and the steamer was not making her time, while the firemen were "sneaking" the blower on at every opportunity to help to keep up the steam.

Fortunately for his reputation as an engineer the chief was working for an owner who would listen to an explanation, so instead of his being discharged by the captain because be could not "drive her," the owner and captain, agreeable to the chief's suggestions got him a good straight "lyne" indicator. This was applied to the engine and here are the cards obtained while running at full speed through the lake.

H. P. CYL.

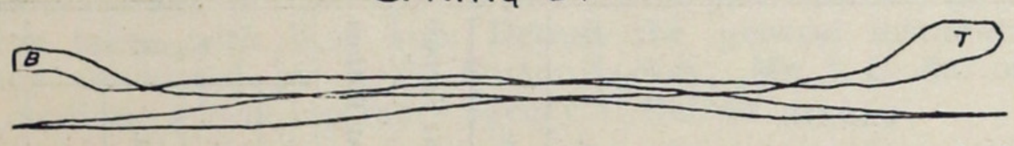


I. P. CYL.



L. P. CYL.

SPRING 8.



Particulars of cards: High pressure—diameter of cylinder 20 inches, stroke 40 inches, cut, all off, scale of spring 80; Intermediate—diameter of cylinder 32 inches, stroke 40 inches, cut, 1⅛ in. on, scale of spring 40; Low pressure—diameter of cylinder 52 inches, stroke 40 inches, cut, all on, scale of spring 8; Steam pressure 150 pounds; Throttle wide open; Vacuum, 20 inches; Revolutions per minute 77.

Card number 1 from the high pressure cylinder indicates everything there to be in good shape, although a freer exhaust would be beneficial. Card number 2 from the intermediate shows that a little more lead would help some, while card number 3 from the low pressure looks as if that engine was doing as much work as a wooden-legged soldier in the fire hold in a gale of wind. The low pressure was where the indicator located the trouble; and knowing that the rings were set out plenty tight enough, the steam chest cover was again taken off, when on a very close examination it was discovered that the valve stem had sprung off from the valve seat, carrying the valve with it, so tightly was it keyed on the stem, causing a direct "blow through" of the steam under the valve into the exhaust port. The trouble was easily remedied and the valve allowed to face up on its seat again when the usual number, 80, revolutions were again obtained, much to the relief of the "smokers" and satisfaction of the captain and engineers.

The vacuum gauge showed a vacuum of 20 inches, all that could be obtained with the attached air pump in use when working strong. Of course with an independent air pump and condenser a vacuum of 26 inches could have been maintained easily but to quote Kipling, "That would be another story."

The engineers in the line boats out of Buffalo are given an indicator by the management and are ordered to hand in as part of their report, cards taken from their engines every trip. But the majority of the steamboat owners of Cleveland are at present unaware of the value of the indicator to them as a saver of fuel, for very few of them furnish or require one to be used. But admitting that fuel is no object to them, the indicator as an important factor in getting out of an engine all that is in it, should be a big recommendation for it to be placed in the hands of the Cleveland engineers.

S. H. H.,
Marine Engineer.

To Locate Obstructions.

It has been suggested repeatedly during the past few seasons that masters of deep draft vessels carry a buoy of some kind with line attachment, to be thrown overboard in case an obstruction of any kind is found in shallow parts of the lakes. During the coming season some work in the way of surveys will very probably be made in certain localities, and in all of the districts the naval officers and engineers will do all in their power to locate any sunken rocks or wrecks that may be reported to them. Vessel masters should co-operate in this movement. Commander Ludlow, Chicago, writes as follows to Capt. Geo. P. McKay on the subject;

Capt. George P. McKay, Dear Sir:—As you are in position to meet many of the masters of the vessels engaged in running to Chicago and other ports in the Ninth light-house district, which comprises Lake Michigan, Green bay and the Straits of Mackinac, to Old Mackinaw point, I would be obliged if you would request all masters who notice obstructions to navigation which are not on the charts, to inform me as soon as possible. I shall be in the government steamer Dahlia during most of the season, and when time can be spared from the legitimate duties of the vessel, shall endeavor to locate as accurately as possible any dangers, rocks, shoals, wrecks, etc., that may be reported to me.

I would like to impress upon those who discover dangers, that in reporting them, accurate ranges of well known objects are the best to locate by, which can be supplemented by compass bearings corrected to give true bearings. The compass errors in some of the lake vessels are so great that little can be made out of uncorrected bearings.

It has been already reported to me that a shoal exists six miles south (true) of Skilligalee, with 17 or 18 feet of water over it. This I shall try to hunt up this season.

The Roumania shoal and the obstruction found by the Lansing in 1890, can hardly be the same, if the data given is anything like correct. There may be two or even more shoal spots there.

NICOLL LUDLOW,
Commander U. S. Navy,
Inspector Ninth light-house district.

If you will send your name and address to the J. L. Jackson, foundry and machine shop, Saginaw, Mich., and mention the MARINE REVIEW you will receive a morocco covered memorandum book that contains valuable mechanical tables and calculations.

MARINE REVIEW.

DEVOTED TO THE LAKE MARINE AND KINDRED INTERESTS.

JOHN M. MULROONEY, ... } PROPRIETORS.
F. M. BARTON, ... }

HOMER J. CARR, - - - Associate Editor and Manager Chicago Office, 210 South Water Street.

Published every Thursday at No. 510 Perry-Payne Building, Cleveland, O.

SUBSCRIPTION—$2.00 per year in advance. Convenient binders sent, post paid, 75 cents. Advertising rates on application.

The books of the United States treasury department contain the names of 3,510 vessels, measuring 1,063,063.90 tons in the lake trade. In classification of this fleet the lakes have more steamboats of 1,000 to 2,500 tons than the combined ownership of this class of vessels in all other sections of the country. The classification is as follows:

Class.	Number.	Tonnage.
Steam vessels	1,527	652,922.25
Sailing vessels	1,272	328,655.96
Canal boats	657	67,574.90
Barges	54	13,910.09
Total	3,510	1,063,063.90

According to the report of William W. Bates, United States commissioner of navigation, 46 per cent. of the new tonnage of the country was built on the lakes during 1889. This is a percentage greater than the work of the Atlantic coast and western rivers combined, and almost equal to the whole work on the Atlantic and Pacific coast. In 1890 the tonnage built on the lakes is but very little less than that built on the Atlantic and Gulf coasts. Tonnage built on the lakes during the past five years was as follows:

	No. of boats.	Net Tonnage.
1886	85	20,400.54
1887	152	56,488.32
1888	222	101,102.87
1889	225	107,080.30
1890	218	108,515.00
Total	902	393,597.03

St. Mary's Falls and Suez canal traffic: Number of boats through St. Mary's Falls canal in 1890, 234 days of navigation, 10,557; tonnage, net registered, 8,454,435. Number of boats through Suez canal during 1890, full year, 3,389; tonnage, net registered, 6,890,014.

Entered at Cleveland Post Office as Second-class Mail Matter.

ATTENTION is again directed to the grain elevator question in Buffalo by the action of the Erie canal boat owners, in supporting a measure in the New York legislature for the construction and maintenance by the state of transfer elevators in Buffalo and New York harbors, these elevators to transfer grain at a charge of half a cent a bushel. Lake vessel owners outside of the Buffalo line companies entertain no great amount of sympathy for the Buffalo elevator association, but it would seem that the New York legislature in taking up this measure might as well consider the question of competing with some of the manufacturing concerns of the state, or with private enterprise generally. The owners of Buffalo elevators have an association or combination for the purpose of increasing their profits. The canal forwarders were combined for two seasons previous to that of 1891 and the vessel owners of the lakes last season endeavored to keep their boats in port until May 1, for the purpose of increasing freights. It is not the intention to discuss the right of these interests to form associations of this kind, but the fact that Buffalo elevator owners have such an association does not excuse a great many false statements now being made in newspapers on the lakes regarding elevator charges. Neither the canal boat nor the lake vessel pays any portion of the elevator charge, any more than does the railway, and this fact should be understood in dealing with the question. The vessel pays the charge for shoveling while unloading, of course, and the canal boat as well as the railway pays the cost of trimming, but these items form no part of elevator charges. The fact is the railways with improved facilities have been advancing, while the canal, through state neglect, has been at a standstill for nearly twenty years. The proposed transfer elevators would be of little benefit as against these conditions, and any move of this kind on the part of the state would only tend to disturb the present system of business to the disadvantage of all concerned.

ON account of the disposition of the present Congress to curtail appropriations in all branches of the government, some lake men who are especially interested in river and harbor improvements have been heard to express the fear that, although liberal treatment of the lakes may be expected from the river and harbor committee, the appropriations will be cut down by the appropriations committee. There need be no fear on this account, as the report of the river and harbor committee is one of the measures that does not go before the committee on appropriations. Unfortunately for the special bill pertaining to lake lights, fog signals, etc., however, this measure must be incorporated with the civil sundry appropriations and must withstand the consideration of the committee on appropriations. In previous years the greatest difficulty has been found with this committee, after months preliminary work, but it is to be hoped that the strong endorsement of the light-house board, especially with regard to lights maintained by private subscription on the lakes, will be of great assistance in the call for more aids to navigation.

ONE of the most important subjects now being discussed by the shipping interest of England is that of communication between light-houses, light-ships and life saving stations. Only a few days ago Congressman Amos J. Cummings introduced in the House a bill with this same end in view, and it is deserving of earnest support from vessel owners all over the country. On the lakes it is only necessary to refer to the long coast line on the shore of Lake Superior, where vessel owners have for years sought for communication between light-houses and life-saving stations, and where the benefits to be derived from such communication in time of disastrous storms must be admitted on all hands. Mr. Cummings' bill authorizes the secretary of the treasury to institute experiments to determine the most effective means by which such communication may be made and maintained and asks for an appropriation of $250,000 to carry out the provisions of the act.

IT is not probable that Senate bill No. 1,755, introduced by Mr. Frye, which proposes government regulations for sailing vessels and a sweeping change in the present regulations for steam vessels, and which has met with a storm of disapproval from vessel owners and marine engineers in all parts of the country, will ever be returned from the commerce committee of the Senate. Although Senator Frye, who is the chairman of this committee, is recognized as a leader in shipping affairs in the present Congress, he now disclaims any connection with the bill further than receiving it from the board of revenue marine officers by whom it was prepared. He has made arrangements, however, to have all protests turned over to this board. The board may return a new bill and on this account the whole matter will bear attention for some time to come.

Dimensions of the Welland and St. Lawrence Canals.

The following table, showing the dimensions of the Welland and St. Lawrence canals, is presented by Lieut. Charles C. Rodgers, U. S. N., in an article on "The Water Route from Chicago to the Ocean," in the March number of Scribner's Magazine:

CANALS.	Length.	Lockage.	Width at Surface.	Width at Botfom.	LOCKS. Number.	LOCKS. Length.	LOCKS. Breadth.	LOCKS. Depth.	Distance to Canal below.
	Miles	Feet.	Feet.	Feet.		Feet.	Feet.	Feet.	Miles.
Welland (new)	26⅜	326¾	200	100	26	270	45	14	236⅜
Galop	7⅝	15½	90	50	3	200	45	9	4½
Rapide Plat	4	11½	90	50	2	200	45	9	10½
Farran's Point	¾	4	90	50	1	200	45	9	5
Cornwall	11½	48	150	100	6	200	55	9	32¾
Beauharnois	11¼	82½	120	80	9	200	45	9	15¼
Lachine	8½	45	150	100	5	270	45	14-18	

Around the Lakes.

Benjamin Boutell of Bay City has bought he Canadian tug Charlton, for use in raft towing in Canadian waters.

H. M. Loud & Sons of Oscoda have purchased the schooner Montgomery for $6,000 and the H. F. Church for $4,000.

Capt. James Kenny has bought one-tenth interest in the steamer W. H. Barnum of Buffalo, and will command her.

The excursion steamer Gazelle has been sold by W. O. Ashley and others of Detroit to J. E. Rebstock and others of Buffalo for $9,500.

It is rumored that Port Arthur and Fort William, the Canadian towns at the head of Lake Superior, will shortly amalgamate under a new name.

A. P. Swineford, well known in connection with Michigan journalism, is to be associated with a new Superior weekly paper to be called the New Northwest.

A Washington report says that the secretary of war has agreed to an order permitting the passage of logs through the Portage lake canals under the control and direction of the superintendent of the canals.

J. L. Crosthwaite of Buffalo, who recently purchased the steamer St. Louis and consorts Champion and Potomac from the Watson estate, gave Buffalo real estate for the boats. A valuation of about $50,000 is placed on the real estate.

Bennett Jones, aged 80 years, a marine engineer, died at Erie recently. He sailed on the old Reed line steamers Jefferson, Madison, and Queen City from 1836 to 1848, after which he joined the United States steamer Michigan, and served on her twenty-one years.

Through J. M. Jones & Son of Detroit Capt. Sidney Scott and William Flumer, Jr. of Mt. Clemens a few days ago purchased from Capt. Kirby of Grand Haven the steamer J. C. Ford. The Ford rates A1* and is valued at $45,000. The consideration in this transfer is not given out.

Any information of George or Thomas Henderson, supposed to be on the lakes in capacity of mates or captains, sent to their sister, Mrs. Margaret Crawford, 37 Richmond street E., Toronto, Ont., will be thankfully received. She has not seen them since they left their home at Paisley, Scotland, many years ago.

The protest of the Cleveland Vessel Owners' Association against the passage of the Frye bill, which proposes a sweeping change in the matter of government regulations for steam and sail vessels, was endorsed by the Cleveland branch of the Shipmasters' Excelsior Marine Benevolent Association at its last regular meeting.

Within the last three weeks Capt. H. L. Shaw of Saginaw has saved four persons from being drowned. Three were boys who went through the ice while skating near where the captain was rebuilding his dredge. The last rescue was that of Capt. Patrick Ryan. The government should establish Shaw as a life-saving station.

D. C. Whitney of Detroit has sold the S. C. Baldwin lumber tow as follows: Steamer S. C. Baldwin to Capt. John Kelley of East Saginaw, price reported at $16,500; schooner India to William Brake and others of Marine City, and schooner Grace Whitney to Capt. William Webb and others of Detroit, price reported at $4,000. The schooner Dashing Wave has not been sold as yet.

Capt. Calbick of the new firm of Burton, Calbick & Cook of Chicago, was in Cleveland a few days ago. Capt. Calbick will look after the wrecking business of the firm. Mr. Cook has been a vessel owner in Chicago for some time past, and Mr. L. L. Burton takes with him from Detroit the general insurance agency conducted by J. C. Burton & Son. Mr. J. C. Burton will continue a local insurance agency at Detroit.

Through its negotiations with Eddy Bros. and John Shaw of Bay City for new vessels, the Detroit Dry Dock Company a short time ago secured control of the steamer John F. Eddy and consort John Shaw, at a price, according to reports, of $118,700—$85,000 for the Eddy and $33,700 for the Shaw. The dry dock company in turn sold the boats to the International Sulphite Fiber Company of Detroit for $116,250. This latter company also owns the propeller A. G. Lindsay. Capt. M.W. Humphrey will manage the boats.

Gen. Poe opened bids at Detroit, Friday, for contracts to supply valves and valve frames for the 800-foot lock in the Sault canal. The tender ranged from 9 9-10 cents to 30 cents a pound. J. P McGuire, superintendent of the Variety Iron Works, Cleveland, bid 9 9-10 cents, the lowest received. The other bids were as follows: King Iron Bridge Company of Cleveland, 10 cents; W. C. Colburn of Detroit 11 cents; Southward Manufacturing & Machine Company of Philadeiphia 13¼ cents; Russel Wheel & Foundry Company of Detroit, 13¼ cents; Wickes Bros. of East Saginaw, 15 40-100 cents; Globe Irons Works Company, of Cleveland, 30 cents.

An order in council had been passed fixing charges for vessels using the Kingston dry docks. On vessels and steamers from 100 to 500 tons, the dockage is to be 20 cents per ton on the registered gross tonnage, and for all tonnage in excess of 500 tons the dockage will be 10 cents per ton upon the excess. The dockage on tugs and vessels of less than 100 tons will be $20; lay days, that is the days that a vessel remains in dock, one to commence twenty-four hours after the dock is pumped out, are to be charged at the rate of 7 cents per ton per day and fractions of a day. In no case is the charge for lying in dock to be less than $20 per day. Cargoes will be charged at the same rate as tonnage, but no charge will be made for ballast. Coal will be classed as cargo.

Elegant Lighting Plant For the Steam Yacht Comanche.

The Globe Iron Works Company of Cleveland, has given the Fisher Electric Company of Detroit, the contract for placing the lighting plant on the Comanche, the new steel yacht in process of construction for Mr. H. M. Hanna. The lighting plant will be the most complete of anything as yet placed on an inland steamer. The new United States naval specifications will be followed in every detail. The generating set will consist of two engines and two dynamos, each dynamo being connected directly to a vertical double-acting twin engine of 12 horse power at 400 revolutions. Each engine and its dynamo will be placed on a rigid iron foundation and the generating sets will occupy a space 8 feet long by 2 feet wide. The dynamos will be of the automatic type manufactured by the Fisher Electric Company, the brushes having a fixed point of commutation and the bearings self-oiling. The yacht will be divided into twelve circuits, the circuits terminating on a switch-board of marble located in the engine room. Each circuit will be controlled by a double-pole combination switch, enabling the engineer by one movement to throw the entire system on one generating set or divide the lamp load between them. The current from each generating set will pass independently through an am-meter.

The fixtures throughout the boat will be very elegant. In the cabin, owner's and guests' rooms masked lighting will be largely employed; frosted side lights will be placed on the pilaster outside the deck housing, and flexible lamps will be arranged for decorative effect on deck when in port. Electric lights with automatic signals will also be used for mast-head and sailing lanterns. A 10,000 candle power search light will be placed on the pilot house. Ventilating fans will be placed in the dining-room, main cabin, owner's room, guests' room, officers' quarters and engine room. The fans will be used to ventilate the several apartments when in warm districts. One generating set will usually supply all circuits with the necessary current, the duplicate set being used only when the decorative lamps are employed.

The Fisher company will also equip the government light-house tenders, Lilac and Columbine, illustrated in last week's issue of the REVIEW. These boats will each have a complete lighting plant, including powerful search lights. The search light and the incandescent lamps will be operated by one automatic dynamo, driven by a Rice engine. The Fisher company's specifications have been adopted to cover future electric light installations on light-house tenders.

Forrest's silver bronze packing is now patented in the United States, Great Britain and Canada. Patents are pending in Spain, France, Belgium, Germany, Italy, Australia, Mexico, Peru, Chile, Brazil, Russia, Austria, Portugal, Norway and Sweden. Rights in all of these countries excepting the United States are for sale, application to be made to the Forrest Silver Bronze Packing Company, No. 115 Liberty street, New York, N. Y. C. W. Houston, one of the engineers on the Central Railway of New Jersey, writes this company of his engine having run 100,000 miles with this metallic packing withont attention in any way, and it was still found to be in excellent condition.

Grain in Store at Chicago and Duluth.

Grain stocks at Chicago and Duluth show a very fair increae for the past week. Following is a statement relative to wheat:

	Chicago.	Duluth.
In store	9,542,666 bu.	8,927,267 bu.
Afloat	997,067 bu.	400,703 bu.
Increase last week	174,716 bu.	341,470 bu.
Excess over same time last year	2,818,259 bu.	4,859,718 bu.

Stocks of corn at Chicago aggregate 1,619,529 bushels, an increase for the week of 52,876 bushels and an increase over the same date last year of 1,416,263 bushels. There is also 501,338 bushels of corn afloat in Chicago. Stocks of oats foot up 882,374 bushels, against 324,445 bushels on the same date in 1891.

Lake Carriers' Association.

At Buffalo on Thursday last the Lake Carriers' Association met in annual session but did not elect officers or dispose of the question of distributing the work of the association among committees, on account of small attendance. Another meeting will be called later when it is expected a better attendance will be secured. A committee from the association will appear before the government engineers, who will meet in Detroit shortly to consider the application of Duluth citizens for a bridge at the harbor entrance. The Lake Carriers' will, of course, oppose the bridge. The Cleveland Vessel Owners' Association will also send a protest to this meeting of engineers against the construction of this bridge.

Publications.

While "Ocean Steamships" treats the articles contained in the handsome volume from a popular reading standpoint it contains much that is interesting and valuable to shipbuilders. It is entertaining reading for lake-faring men. The volume is published by Charles Scribner's Son, New York, but if you wish a copy send $3 to the MARINE REVIEW, Cleveland, O.

"How to run Engines and Boilers" is a 125-page book full of practical suggestions on the subjeet, and engineers speak highly of it. The author, E. P. Watson, is editor of the Engineer, in which journal the papers that make up the volume appeared during the past year. You will get a copy of it if you send $1.50 to E. P. Watson, 150 Nassau st., New York, N.Y.

Aids to Navigation.

The light-house board has recommended with only a few exceptions all of the aids to navigation contained in the sundry light-house bill recently prepared by the Cleveland Vessel Owners' Association and Lake Carriers' Association. A special report to Congress was made on the bill on Monday. It was feared when the bill was being considered by the engineers and naval officers in the different lake districts that the question of lights at the Lime-Kilns' crossing and Bar point being located in Canadian waters would act against a favorable report from the board, but the fact that these lights have been maintained for three seasons past by private subscriptions has caused a most earnest recommendation with regard to them.

Legislative Interference With Private Enterprise.

The following from Industry of San Francisco fairly expresses the feeling among lake vessel owners when confronted with the Frye bill and other measures of its kind now pending in Congress:

"On the score of licenses, inspection, taxes of one kind or another, and a complicated system of clearances, declarations, enrollment, and what not, our water craft are bedeviled from the the time a keel is laid until the bones of a ship are bleaching on the shore. Why are the qualifications of masters, mates, engineers and pilots so carefully looked into, when railway train officers receive no attention at all? Both carry passengers and both have perils of a common kind, or resulting from a common cause, the want of qualification in the men in charge. The fact is that for thirty years past every invidious act that could be forced through Congress to cripple water carriage has passed under the guise of 'protecting the public.'"

Fifty-Second Congress—First Session.

The following bills of interest to lake vessel owners have been introduced in Congress recently:

H. R. 6,745, Haugen—To establish a sub-port of entry and delivery at Superior, Wis., in the Superior collection district.

H. R. 6,786, Lynch—To establish a sub-port of entry and delivery at Ashland, in the Superior district of Wisconsin.

S. 2,401, Sawyer—To authorize the consolidation of customs collection districts and for other purposes.

To print 4,000 copies of the report of Naval Constructor Philip Hichborn on European dock yards.

In General.

Daniel McCarty, prominent in Chicago grain shipping circles, was in Cleveland last week.

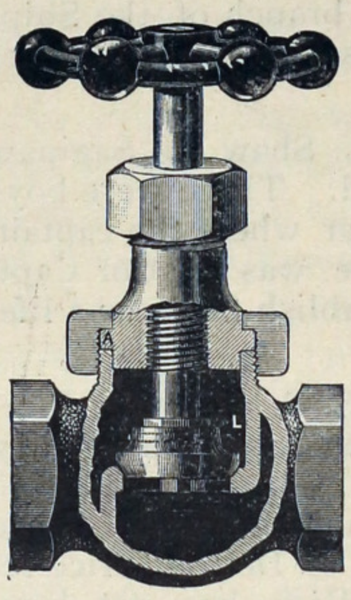
The dry dock of the whaleback barge company at West Superior is being lengthened from 482 to 512 feet.

One of the Detroit & Cleveland Steam Navigation Company's side-wheel steamers, the City of Cleveland, is expected to begin service between Detroit & Cleveland on Monday next.

The United States Senate has passed a bill giving the keepers of life-saving stations $900 a year and the surfmen $65 per month. The House amended the bill so as to give keepers $1 000 a year and surfmen $75 per month. In reply to Capt. Dobbins, who feared the matter might fall through because of its divided form, Congressman Lockwood wrote that the House will make strenuous efforts to get the Senate to endorse the bill, but failing in that the House will pass the Senate bill. It was certain, he added, that the members of the service would get at least the advance indicated in the Senate bill. There has been much dissatisfaction over the salary list of last season, and some of the best men in the service have decided not to re-enter it unless better pay is forthcoming.—Buffalo Courier.

Lunkenheimer's Regrinding Globe Valve.

We present with this a view of a valve which possesses some features of a special merit. Instead of the hub being threaded direct to the body of the valve, it is merely fitted into it plain, and rests upon a flange which fits upon the upper edge of the opening, as shown. The hub is then secured by a nut which fits over the flange, and is threaded to the outside of the body of the valve.

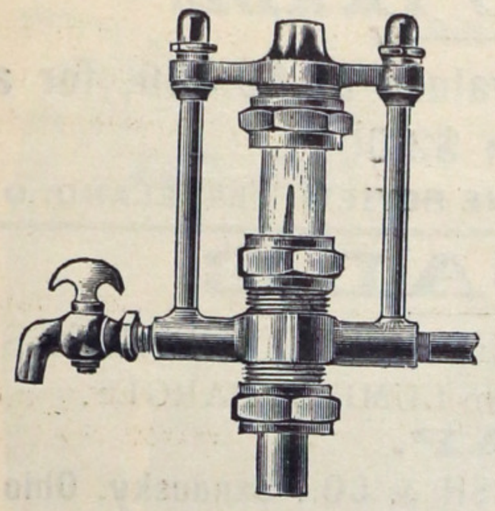


REGRINDING GLOBE VALVE.

The result of this arrangement is that the valve can be reground at any time with the greatest facility, because all that is necessary is to loosen the nut, remove the hub, place a little sand and soap under the disk, and then replace the hub, leaving the nut loose, so that the hub is free to turn with the stem during the grinding. A piece of wire is passed through a hole provided for that purpose in the lower end of the stem and disk, so that the disk will turn with the stem during the grinding, which, of course, it does not necessarily do when the valve is in use. The hub, being in place when the grinding is done, effectually centers the the stem and holds it in proper place, so that the regrinding is done correctly. The valve can thus be readily ground while in position, and in many cases does away with the necessity for breaking connections. The disk is also, of course, easily replaced when required. These valves, as a proof of their superiority, are extensively used on locomotives, steamers and in the United States navy on cruisers, where the requirements are very severe. They are made only by The Lunkenheimer Brass Manufacturing Company, Cincinnati, O.

The Evansville and Paducah Packet Company, after using the United States Graphite Company's graphite paint manufactured at Saginaw, Mich., for their stacks and boiler fronts, report that it is the only paint they have ever found that would stand, and have placed a large order for their use.

Send 75 cents to the MARINE REVIEW for a binder that will hold 52 numbers.



Sight-Feed Connection for Oil Pumps.

THE illustration herewith shows a connection that enables the engineer to see the amount of oil the pump is throwing, it being placed between the pump and cylinder. It is entirely an new feature for oil pumps, and if anything happens so that the oil does not pass from the pump it is discovered immediately. It was in use on several steam barges last fall and gave entire satisfaction. The price of this connection is $10 and a charge of $2 is made for connecting same. Engineer Haycox, the patentee will carry them on the steamer John Owen, or they can be procured from the Queen City Metal Company, Buffalo.

OFFICE OF LIGHT-HOUSE INSPECTOR, 11th District, at Detroit, Mich., February 29th, 1892. Proposals will be received at this office until 12 o'clock M., on Tuesday, the 15th day of March, 1892, for maintaining all the Buoys now marking the entrace into Saginaw river, Michigan, and such others as may be authorized, for one year, from the first day of July next. Forms of proposals and printed specifications, showing what is required, can be had by applying to this office. The right is reserved to reject any or all bids, and to waive any defects. The contracts will not be approved until the Sundry Civil Bill making appropriations for the next fiscal year has become a law. O. F. HEYERMAN, Commander, U. S. N., Light-House Inspector. Mar 10

OFFICE OF LIGHT-HOUSE INSPECTOR, 11th District, at Detroit, Mich., Feb. 29th, 1892. Proposals will be received at this office until 12 o'clock M., on Tuesday, the 15th day of March, 1892, for furnishing and delivering Provisions for Vessels and Light Stations in this district, for the fiscal year ending June 30th, 1893. Forms of proposals and printed instructions giving full particulars as to the articles required, and the terms of delivery and payment, can be obtained at this office. The right is reserved to reject the whole or part of any or all bids, and to waive any defects. The United States reserves the right to reduce the quantities specified, or to require the delivery at any time during the fiscal year of a greater quantity (not to exceed one-third) of any item or article mentioned in the specifications, and a clause to this effect will be inserted in the contract. Contracts will not be approved until the Sundry Civil Bill making appropriations for the next fiscal year has become a law. O. F. HEYERMAN, Commander, U. S. N., Light-House Inspector. Mar. 10

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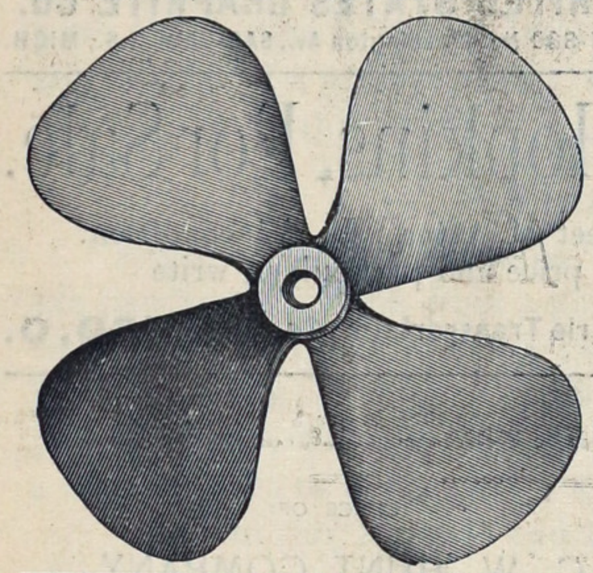

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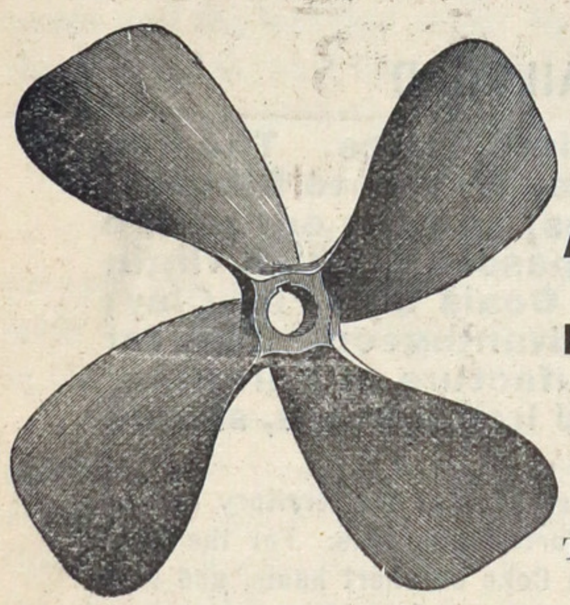

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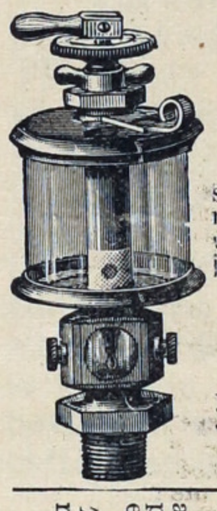

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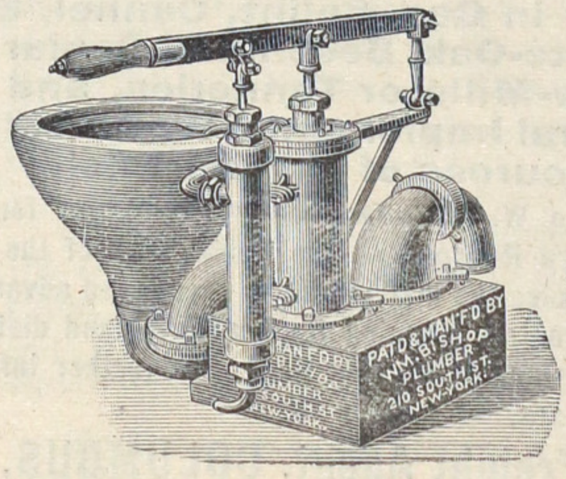

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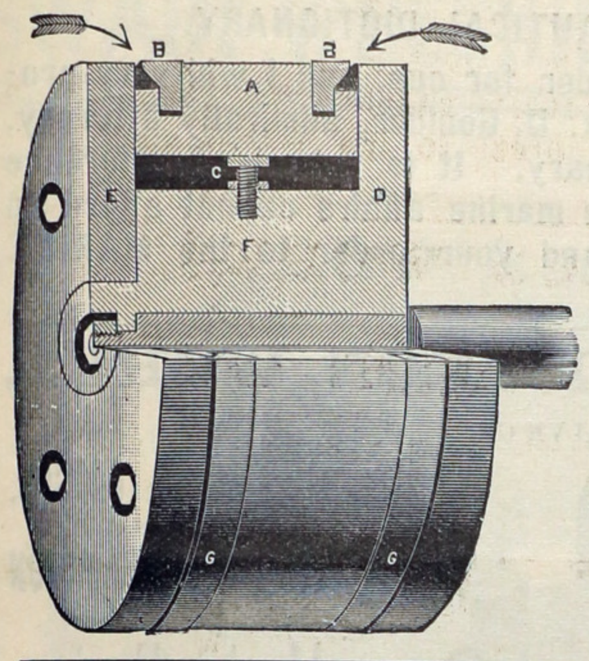

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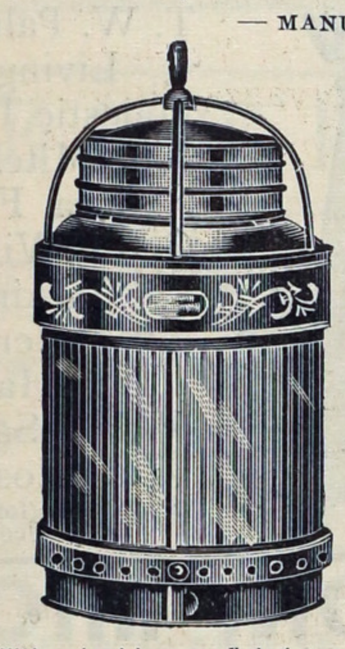

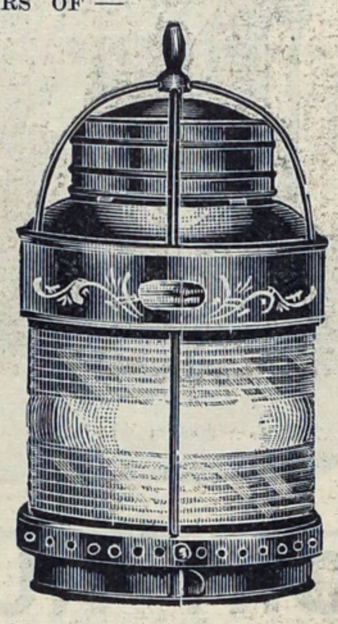

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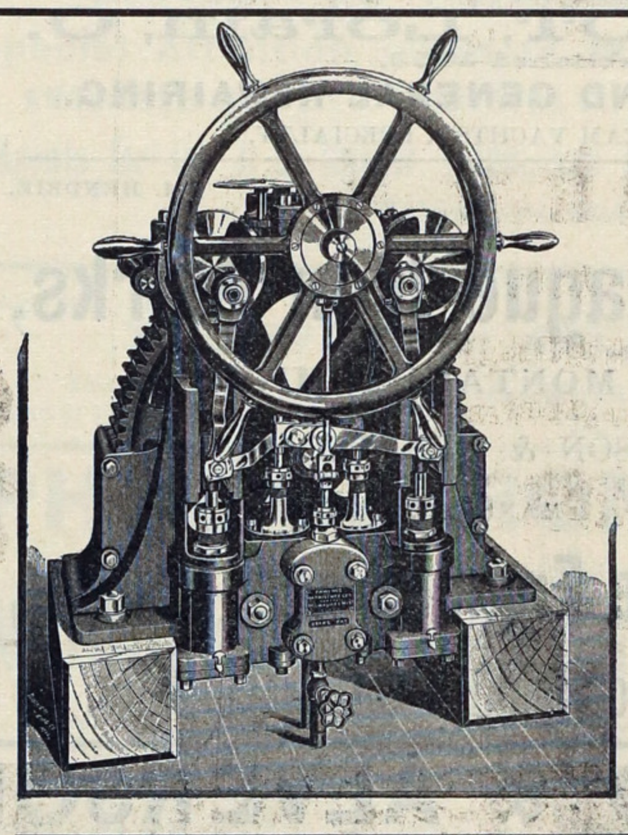

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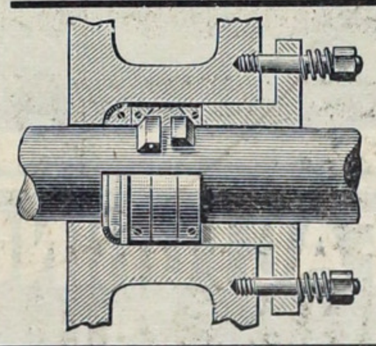

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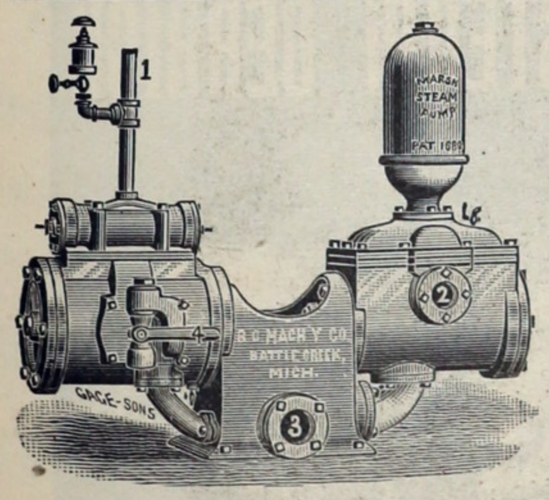

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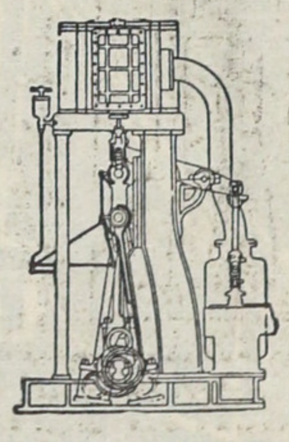

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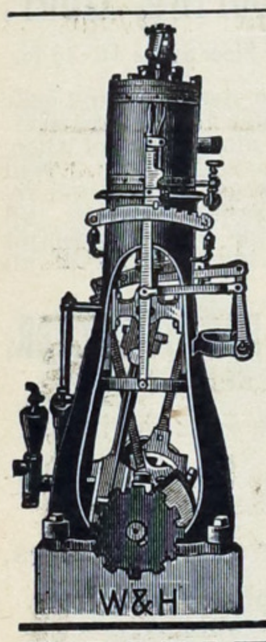

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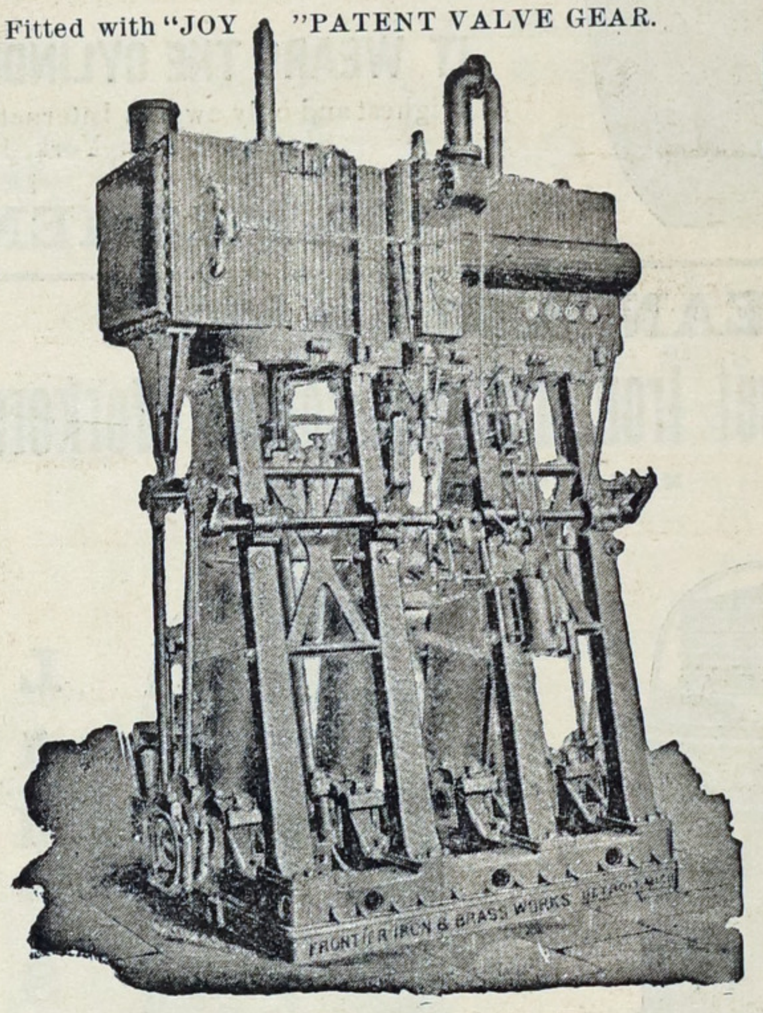

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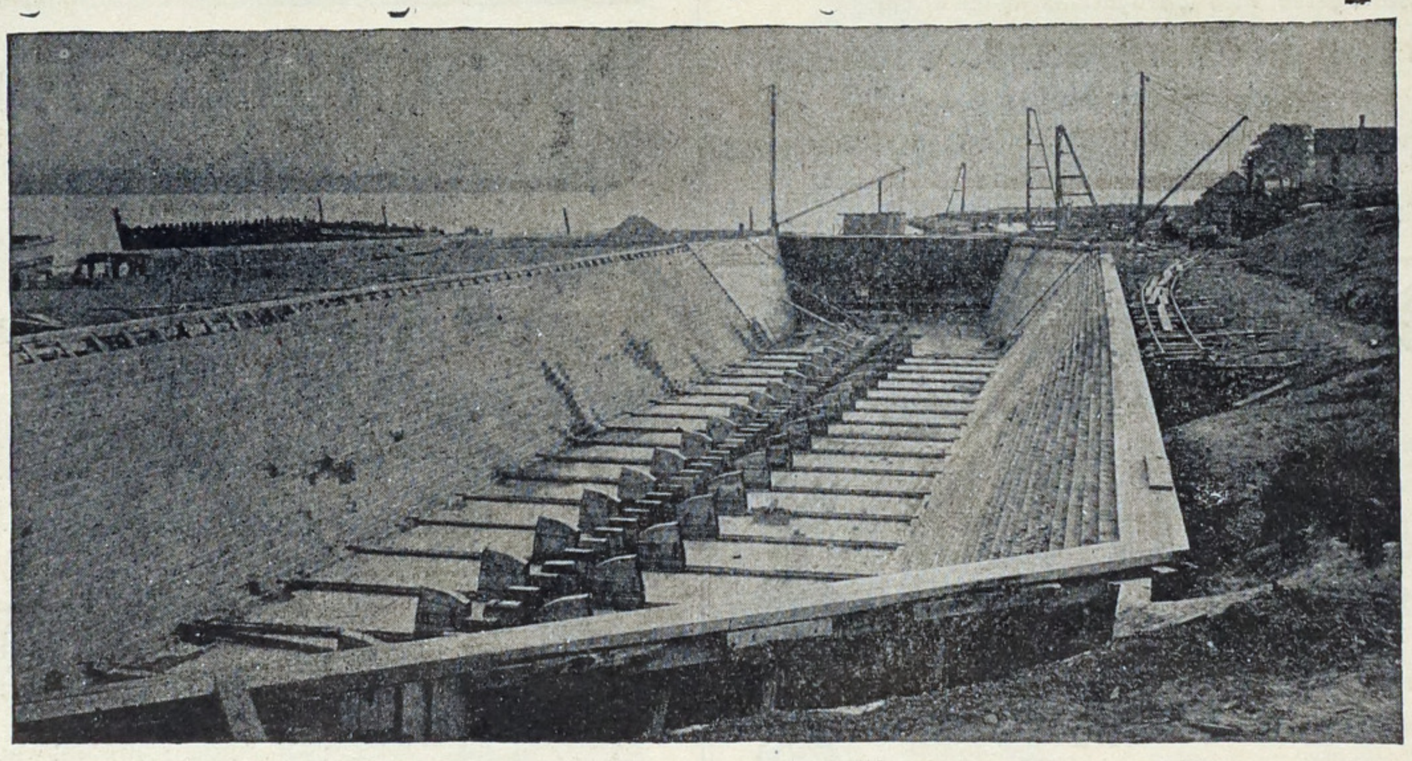

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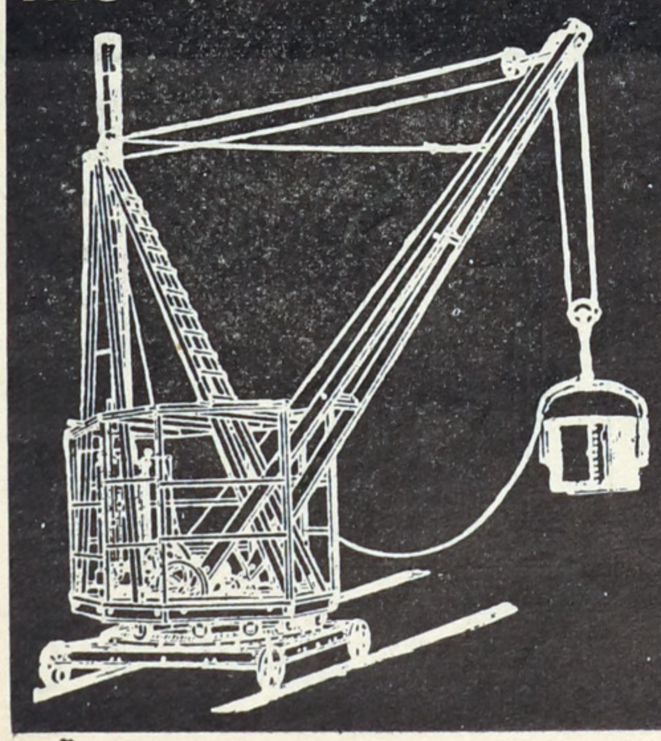

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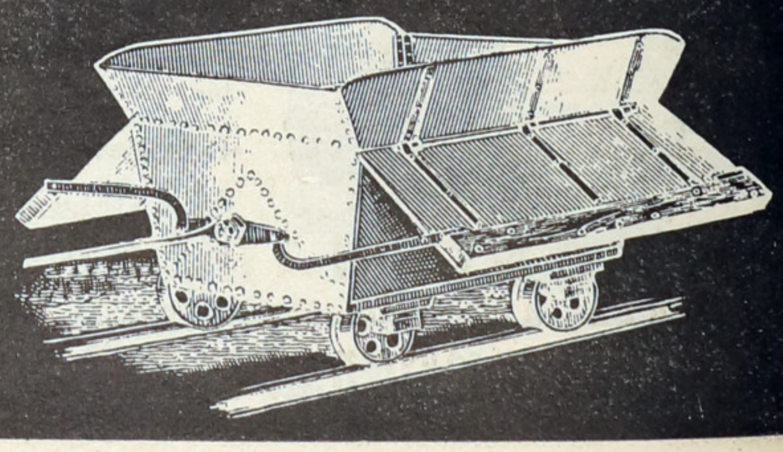

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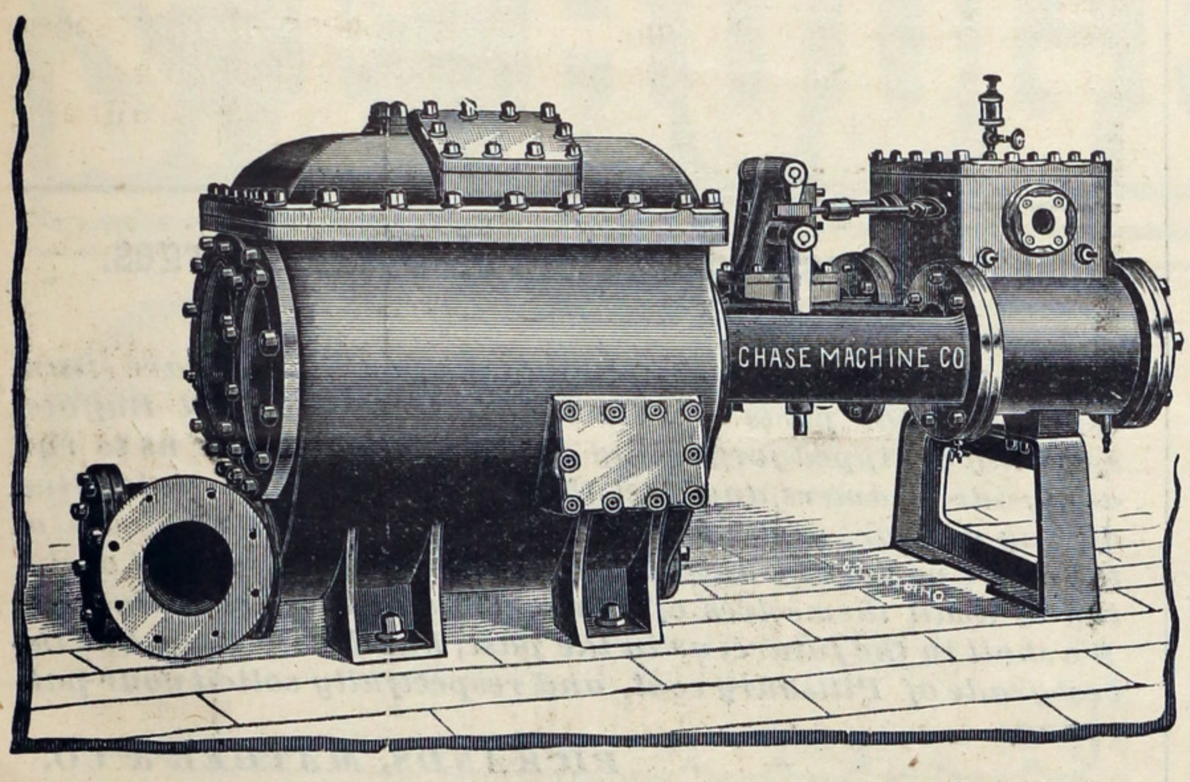

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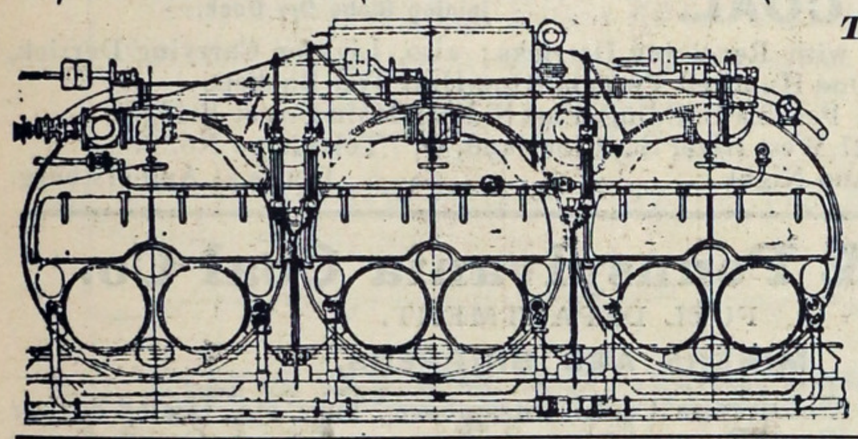

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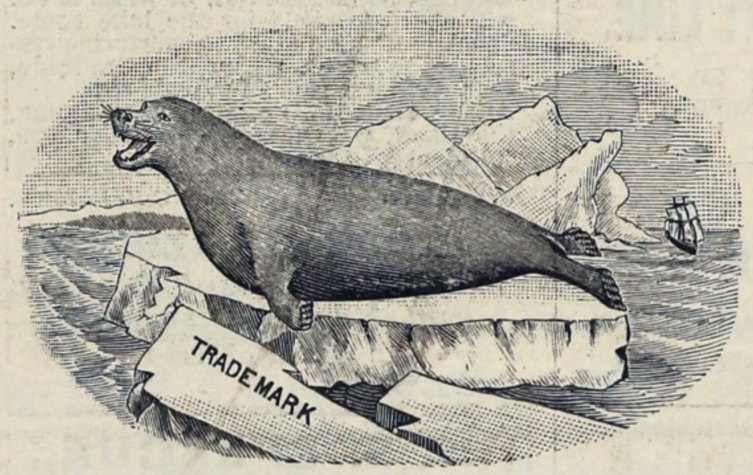

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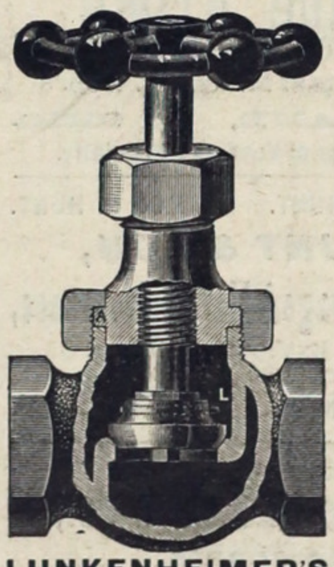

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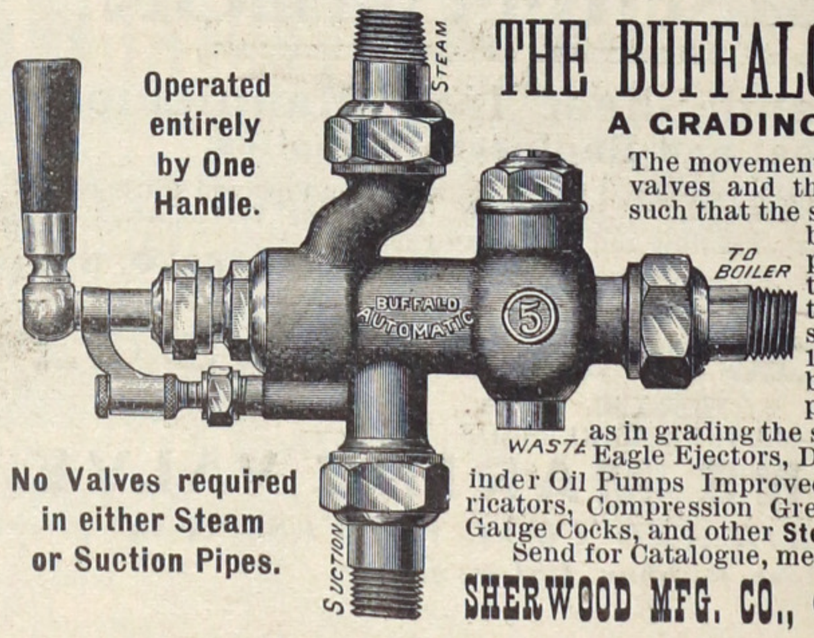

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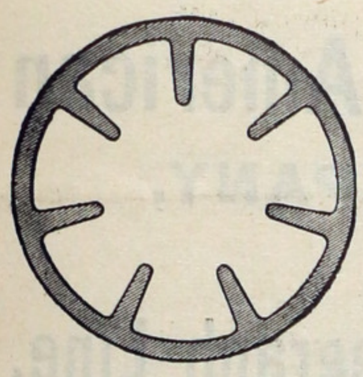

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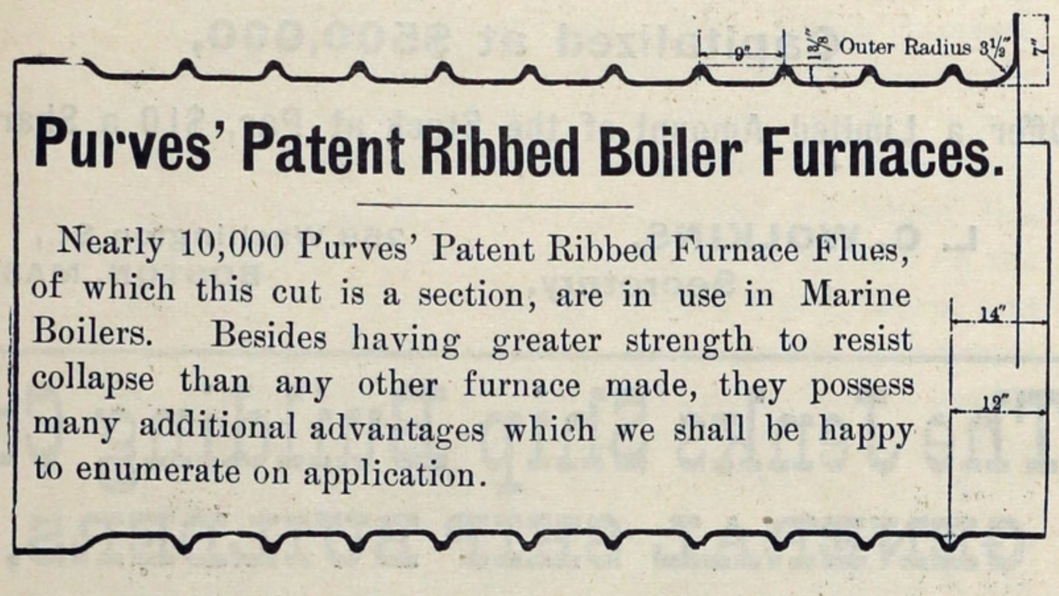

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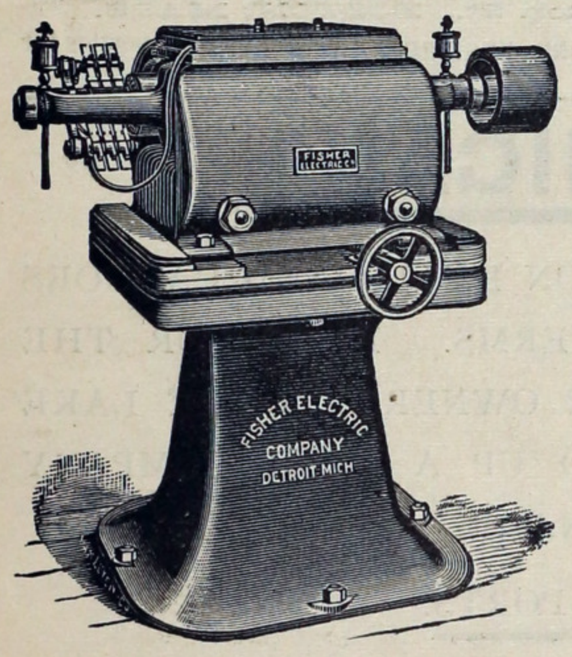

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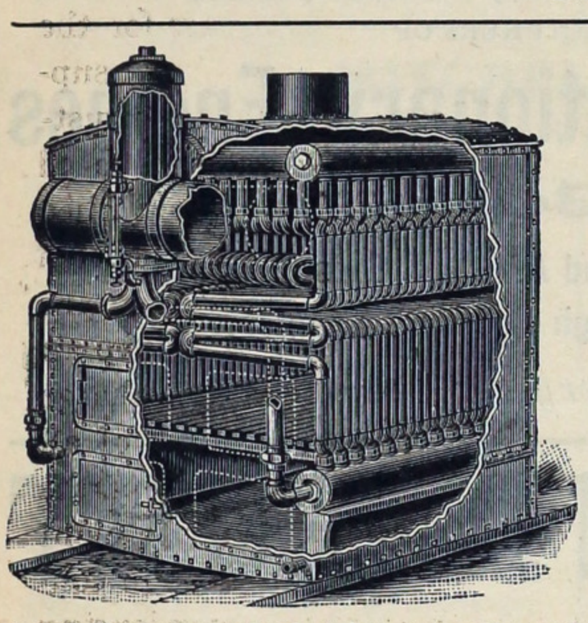

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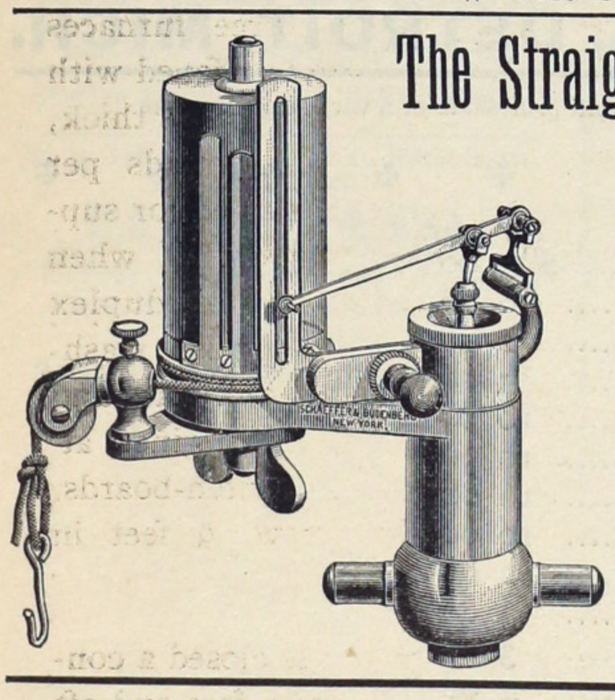

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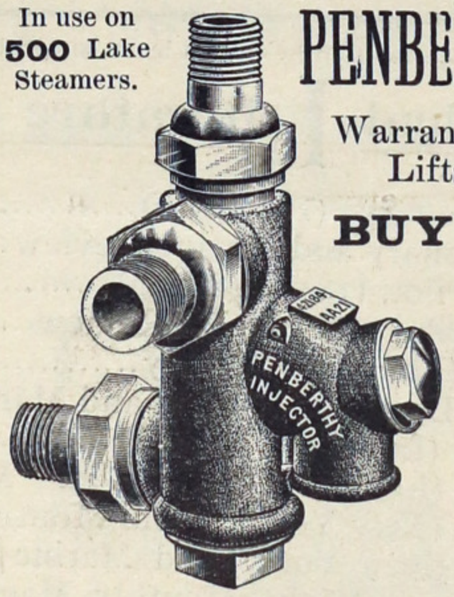

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